APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,218	06/27/2003	Michio Yamashita	04329.3085	5693

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EXAMINER
PATEL, ANAND B

ART UNIT	PAPER NUMBER
2116	

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 April 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-5,7-11 and 13-15</u> is/are rejected.

7)☒ Claim(s) <u>6,12 and 16</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Amendment filed 4/20/06 has been entered and as such claims 1, 9 are amended and 14-16 are added.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the

rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-5, 7-11, 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No

6513124 to Furuichi et al (Furuichi).

- As per claim 1, Furuichi discloses a method of controlling a clock frequency of a processor,

comprising:

  - Acquiring an executable instruction count per unit time of the processor (column 3, lines 5-

  7), the count being a count of instructions related to software programs, including an application

  and an operating system (OS), executed by the processor (column 4, lines 55-63);

  - Acquiring a clock count per unit time of the processor (column 5, lines 19-27);

  - Determining whether a ratio of the executable instruction count to the clock count exceeds a

  predetermined value (column 3, lines 7-14); and

  - Controlling the clock frequency of the processor in accordance with a result of the

  determination (column 3, lines 7-14).

- As per claim 9, Furuichi discloses an electronic apparatus, comprising:

  - A clock oscillator configured to supply a clock signal (9);

- A processor (3) configured to generate an internal clock on the basis of the clock signal supplied from the clock oscillator (column 4, lines 32-35); and

- A control unit (19) configured to control a frequency of the internal clock in accordance with a ratio of an executable instruction count per unit time to a clock count per unit time of the internal clock generated by the processor (column 4, lines 55-59, 63-65), the count being a count of instructions related to software programs, including an application and an operating system (OS), executed by the processor (column 4, lines 55-63).

- As per claim 2, Furuichi discloses the method wherein a series of power control monitoring and controlling steps are repetitively executed at a predetermined time interval (column 8, lines 54-56). Furuichi discloses the specific steps as outlined above.

- As per claim 3, Furuichi discloses the method wherein the predetermined time interval is changeable (column 8, lines 54-56).

- As per claim 4, Furuichi discloses the method wherein the control includes controlling to decrease the clock frequency of the processor when the ratio is determined not to exceed the predetermined value (it is inherent that this limitation is met given the explanation of the opposite conditions cited in column 3, lines 8-14).

- As per claims 5, 11, Furuichi discloses the method wherein the determination includes determining whether a ratio of i) a difference between two executable instruction counts acquired successively (the inherent $I_{u2}-I_u$ calculation given that the rate of change is being calculated) to ii) the clock count exceeds a predetermined value (column 3, lines 21-26).

- As per claims 7, 13, Furuichi discloses the method wherein the control includes increasing the clock frequency when the ratio is determined as a result of the determination to exceed the predetermined value, and decreasing the clock frequency when the ratio is determined not to exceed the predetermined value (column 3, lines 21-26).

- As per claim 8, Furuichi discloses the method wherein the predetermined value is changeable (column 7, line 65).

- As per claim 10, Furuichi discloses the apparatus wherein the control unit (19) determines whether a ratio of the executable instruction count to the clock count exceeds a predetermined value (column 3, lines 7-14) and controls a clock frequency of the processor in accordance with a result of the determination (column 3, lines 7-14; column 4, lines 63-65).

- As per claim 14, Furuichi discloses the method wherein controlling comprises:

  - Determining an operational mode from a plurality of operational modes (inherent given the determination of the threshold associated with a specific operating frequency; abstract), associated with a plurality of threshold values (inherent given that each threshold value of E_0 has a specific operating frequency that the system will adjust to);

  - Selecting a threshold value associated with the determined operational mode as the predetermined value (predetermined E_0); and

  - Changing the clock frequency of the processor based on the ratio and the predetermined value (figure 3; column 6, line 50 – column 8, line 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuichi in view of US Patent No 6317840 to Dean et al (Dean).

- As per claim 15, Furuichi fails to specifically disclose three operational modes. Dean teaches wherein a plurality of operational modes includes at least a power saving mode, a standard mode, and a high-speed mode (column 3, lines 44-49). An advantage of the system taught by Dean is the ability to decrease power consumption in a processor without decreasing performance (column 2, lines 13-35). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Furuichi with the operational modes as taught by Dean. Motivation to modify is to lower power and cut costs without performance degradation.

Allowable Subject Matter

6. Claims 6, 12, 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art fails to disclose or suggest wherein selecting the threshold value further includes searching a table containing information about relationships between the operational modes and the threshold values, and selecting the threshold value associated with the determined operational mode as the predetermined value.

Response to Arguments

7. Applicant's arguments filed 4/20/06 have been fully considered but they are not persuasive.

8. Applicant argues Furuichi fails to disclose acquiring an executable instruction count per unit time of the processor, the count being a count of instructions related to software programs, including an application and an operating system, executed by the processor. Examiner disagrees. Furuichi teaches another embodiment of the invention starting in column 4, line 55. In this embodiment, the instruction counts are related to application program 7 and operating system 5.

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the

extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from

the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on the date the advisory action

is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX

MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should

be directed to Anand Patel whose telephone number is (571) 272-7211. The examiner can normally be

reached on Mon-Fri 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Lynne Browne can be reached on (571) 272-3670. The fax phone number for the organization where this

application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be obtained

from either Private PAIR or Public PAIR. Status information for unpublished applications is available

through Private PAIR only. For more information about the PAIR system, see http://pair-

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer

Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR

CANADA) or 571-272-1000.

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